south, Bactria, the valley of the Oxus, Northern Asia, Chorasmia, and probably the whole of Europe, constitute the great primitive habitation of the Horse. Far to the north the species has no congener, but soon the *Hemionus* is known to be its companion; and further to the south, the Wild Ass extends eastward across the Indus to the Bramaputra, and west into Africa, far up the banks of the Bahar-el-Abiad and Atbara. Other congeners there are on this side the equator, but they are not sufficiently known, nor is their precise location determined."

The author however inclines to the belief that the nations who first subdued horses derived each their own race from the wild stock in their vicinity, observing in the descriptions by the poets and historians of antiquity, the uniformity of colours and characters recorded of the primitive breeds, such as the pied variety in the central mountains of Middle Asia, the dark bay southwards of the banks of the Jyhoun or Jaxartes, the dun more westward, as far as the Caspian, the white on the north shore of the Euxine, and the sooty and black in Europe. "We shall find," observes Col. Smith, "among these, races always clouded of two colours, others constantly marked with a black streak along the spine, often cross-barred on the joints, with dark or black extremities; and again, another, where circular spots, commonly clearer than the ground-colour, occur—whether they be bay, blackish ashy, or gray; the durability of these distinctions, not obliterated even in our time, during more than 3000 years of perpetual crossings of breeds, affords another and a strong argument in favour of an aboriginal difference of species in the single form of the Domestic Horse."

The 'Natural History of Fishes,' vol. ii., by J. T. Bushnan, M.D., &c., forms an introduction to the other volumes, belonging to the series, on this group of animals, treating of Fishes in relation to other animals, their natural habitat, structure, locomotion, &c.—the œconomical and commercial uses and advantages arising from our fisheries are also dwelt upon. The plates are selected for illustration of these various subjects, and therefore do not follow in any order of classification, as in the volume on Perches already published. Such a volume as the present one was much wanted, and has been ably executed by Dr. Bushnan.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

December 8, 1840.—W. H. Lloyd, Esq., in the Chair.

Mr. Gould completed the exhibition of his fifty new species of Australian birds, and characterized the following new species :—

A new *Entomyza* interesting as being the second species of that form. Mr. Gould received this bird from Port Essington, and believes that it there supplies the place of *E. cyanotis*, which is common on the eastern coast. Its distinguishing characteristics are its rather larger size, the markings of its throat being more strongly defined and the

basal half of the primaries being white; for which reason he proposes to characterize it as

ENTOMYZA ALBIPENNIS. *Ent. corpore suprà et alis e viridi aureo-olivaceis; primariis fuscis; pogoniis internis per dimidium basale niveis.*

Crown of the head and back of the neck black; lower part of the face, chin and centre of the chest slaty black; a crescent-shaped mark at the occiput, a line from the lower mandible passing down each side of the neck and all the under surface pure white; upper surface and wings greenish golden olive; primaries brown, the basal half of their inner webs snow-white; tail feathers brown, tinged with golden olive, all but the two centre ones tipped with white; bill, bare space surrounding the eye and feet in all probability the same as in *E. cyanotis*.

Total length, 12 inches; bill, $1\frac{1}{2}$; wing, 6; tail, $4\frac{3}{4}$; tarsi, $1\frac{5}{8}$.

Hab. Port Essington on the northern coast of Australia.

Nearly allied to *E. cyanotis*, but always distinguishable from that species by the white basal half of the primaries.

A new *Myzomela* differing from all the other members of the genus in its pied colouring and the black band across the chest, which suggests the specific name of

MYZOMELA PECTORALIS. *Myz. gutture et corpore subtùs albis, pectore fasciâ angustâ nigrâ transversìm notato.*

Forehead, crown of the head, the upper surface, wings, tail and a narrow band across the chest, black; throat, upper tail-coverts and all the under surface white; bill and feet black.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{3}{8}$; tail, $1\frac{3}{4}$; tarsi, $\frac{5}{8}$.

Hab. North-west coast of Australia.

A second example of the genus *Dasyornis*, inhabiting Swan River, which I propose to call

DASYORNIS LONGIROSTRIS. *Das. colore ut in D. Australi; differt autem staturâ corporis minore, rostro grandiore.*

All the upper surface brown; wings, tail-coverts and tail rufous brown, the latter indistinctly barred with a darker tint; under surface gray, gradually passing into the brown of the upper surface; irides bright reddish brown; bill and feet dark horn-colour.

Total length, $7\frac{1}{2}$ inches; bill, $\frac{7}{8}$; wing, $2\frac{5}{8}$; tail, 4; tarsi, $\frac{7}{8}$.

Hab. Western Australia.

This is a somewhat smaller bird, but has a longer bill than *D. Australis*.

An entirely new form, belonging to the family *Saxicolinæ*, and nearly allied to *Petroïca*, I propose to make the type of a new genus, *Drymodes*, signifying a lover of woodland places:—

Genus DRYMODES.

Characteres generici.—*Rostrum* rectum, ad latera apicem versus paulò compressum, ferè longitudine capitis, apice levitèr denticulato, basi vibrissis parcè instructâ. *Alæ* mediocres, rotundatæ, re-

migum primo brevissimo, quinto longissimo. *Cauda* mediocritèr elongata, paulò rotundata. *Tarsi* longi, graciles, anticè superficie integrâ. *Digiti* mediocres, externus horum quàm internus paulò longior, posticus cum ungue quàm digitus intermedius cum ungue brevior.

Drymodes brunneopygia. *Dry. fusca; primariis apud pogonia interna albo transversìm striatis; uropygio tectricibusque caudæ rufo-fuscis.*

Head and all the upper surface brown, passing into rufous brown on the upper tail-coverts; wings dark brown, the coverts and primaries edged with dull white; primaries and secondaries crossed near the base on their inner webs with pure white; tail rich brown, all but the two middle feathers tipped with white; under surface grayish brown, passing into buff on the under tail-coverts; irides bill and feet blackish brown.

Total length, 8 inches; bill, $\frac{7}{8}$; wing, $3\frac{7}{8}$; tail, $4\frac{1}{4}$; tarsi, $1\frac{1}{2}$.

Hab. Belts of the Murray in South Australia.

This bird, although of a large size and so sombre in colouring, is nearly allied to *Petroïca*.

The next is an extraordinary form among the *Muscicapidæ*, differing from all the other known members of that group in having the bill compressed laterally, for which reason I propose to constitute it the type of a new genus, with the following name and characters.

Genus Piezorhynchus.

Characteres generici.—*Rostrum* quàm caput longius, altius plusquàm latum, ferè cylindraceum, lateralitèr compressum, apicem versus denticulatum. *Nares* parvæ, rotundatæ, basales. *Alæ* breves, remige primo mediocri, quarto longissimo. *Cauda* aliquantò brevis et rotundata. *Tarsi* mediocriter elongati et paulò debiles. *Digitus* externus et medius inter se connexi usque ad articulum primum, externus longissimus.

The only specimen I possess was forwarded to me by E. Dring, Esq., surgeon of H.M.S. Beagle, by whom it was procured on the north-west coast of Australia. From the glossy nature of its plumage I propose to name it

Piezorhynchus nitidus. *Piez. fulgidè virescenti-niger.*

All the plumage, including the wings and tail, rich deep glossy greenish-black; bill and feet black.

Total length, $7\frac{1}{4}$ inches; bill, $1\frac{1}{8}$; wing, $3\frac{1}{4}$; tail, $3\frac{1}{4}$; tarsi, $\frac{3}{4}$.

Hab. North-west coast of Australia.

This very curious bird belongs, I conceive, to the *Muscicapidæ*, and is somewhat allied to *Seisura*.

A new *Praticola*, common on the plains round Adelaide, and forming the second example of the genus, is

Praticola campestris. *Prat. fronte et plumis auricularibus rufis; gutture albescente; corpore subtùs et lateribus ex arenaceo luteolis fusco striatis.*

Forehead rufous, passing into the reddish brown of the crown and

upper surface, with a stripe of blackish brown down the centre of each feather; wings sandy brown; internal webs of the primaries dark brown; two centre tail-feathers reddish brown, the remainder reddish brown at the base, crossed towards the extremity with a broad band of brownish black and broadly tipped with white; over the eye a line of white; ear-coverts mingled rufous and white; throat white, gradually passing into the buff of the under surface; all the feathers of the under surface with a stripe of brownish black down their centre; bill blackish, lighter at the base of the under mandible; irides rufous brown; feet blackish brown.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{1}{4}$; tail, 2; tarsi, $\frac{7}{8}$.

Hab. South Australia.

Closely allied to but much smaller than *Calamanthus striatus*.

A new *Acanthiza* as

ACANTHIZA INORNATA. *Acanth. corpore suprà, alis caudâque olivaceo-fuscis, hâc nigrescenti-fusco latè fasciatâ; corpore subtùs pallidè luteolo.*

All the upper surface, wings and tail olive brown; primaries dark brown; tail crossed by a broad band of brownish black; all the under surface light buff; irides greenish white; bill and feet black.

Total length, $3\frac{1}{2}$ inches; bill, $\frac{1}{2}$; wing, $1\frac{7}{8}$; tail, $1\frac{1}{2}$; tarsi, $\frac{11}{16}$.

Hab. Western Australia, particularly the neighbourhood of Swan River.

A new species from Swan River, which, with the *Muscicapa macroptera* of Messrs. Vigors and Horsfield, I propose to erect into a new genus under the name of *Micræca*.

Genus MICRŒCA.

Characteres generici.—*Rostrum* quàm caput brevius, depressum, ad basin latum, gonyide recto, apice incurvo et levitèr denticulato. *Nares* rotundatæ, ad basin rostri vibrissis validis instructam positæ. *Alæ* longæ et fortes, remigum primo brevi, tertio longissimo. *Cauda* aliquantò brevis, et ferè quadrata. *Tarsi* mediocres, debiles. *Digiti* debiles; externus quàm internus valdè longior.

As the species now exhibited closely assimilates to the *M. macroptera*, I propose to designate it as

MICRŒCA ASSIMILIS. *Mic. supernè, caudæ rectricum externorum pogoniis internis per partes tres longitudinis a basi fuscis.*

All the upper surface brown; primaries dark brown; tail brownish black, the tips and the terminal half of the external margins of the two outer feathers white, the three next on each side are also tipped with white, the extent of the white becoming less upon each feather as they approach the centre of the tail; the four middle feathers without the white tip; throat, centre of the abdomen and under tail-coverts white, passing into pale brown on the sides of the chest and flanks; irides reddish brown; bill and feet blackish brown.

Total length, $4\frac{5}{8}$ inches; bill, $\frac{9}{16}$; wing, $3\frac{3}{8}$; tail, $2\frac{1}{8}$; tarsi, $\frac{9}{16}$.

Hab. Western Australia.

Nearly allied to but much less in size than *Muscicapa macroptera*, Vig. and Horsf., and from which it may also be distinguished by the base of the outer tail-feather being brown.

Myiagra latirostris. *Myi. corpore suprà, alis caudâque intensè cæruleo-cinereis; capite et nuchâ fulgidè virescentibus; gutture et pectore arenaceo-luteolis; abdomine albo.*

All the upper surface, wings and tail dark blueish gray, with a shining greenish lustre on the head and back of the neck; throat and chest sandy buff; under surface white; bill much dilated laterally and black; irides blackish brown; feet black.

Total length, 6 inches; bill, $\frac{3}{4}$; wing, $2\frac{3}{4}$; tail, $2\frac{3}{4}$; tarsi, $\frac{5}{8}$.

Hab. North-west coast of Australia.

From the collection of Mr. Dring.

Hirundo leucosternus. *Hir. dorso medio, gutture et pectore albis; abdomine, uropygio, alis caudâque nigris et chalybeïo-cæruleo-nitentibus.*

Crown of the head brown, bounded with white; back of the neck brown; centre of the back, chin, throat and chest white; the remainder of the plumage black, slightly glossed with steel-blue; bill black; feet brown.

Total length, $7\frac{1}{4}$ inches; bill, $\frac{5}{16}$; wing, $3\frac{3}{4}$; tail, which is deeply forked, $2\frac{3}{4}$; tarsi, $\frac{7}{16}$.

Hab. Interior of Australia.

The only specimen of this bird that has ever come under my notice, was given me by Mr. Charles Coxen, who informed me it was shot by one of his men while flying in company with another over a small pool on the banks of the Namoi.

A small bird inhabiting the scrubs of the River Murray. It is a new form, nearly allied to *Acanthiza*. The generic term is suggested by the ruddy colouring of the throat.

Genus Pyrrholæmus.

Characteres generici.—*Rostrum* quàm caput brevius, ad latera paulò compressum, ad apicem denticulo vix notando, vibrissis parvulis ad basin, naribus linearibus et operculo tectis. *Alæ* breves, rotundatæ, remigum primo perbrevi, tertio longissimo. *Cauda* brevis, rotundata, concava. *Tarsi* mediocres; digitus externus quàm internus longior.

Pyrrholæmus brunneus. *Pyrrh. supernè brunneus; gutture rufo.*

Lores greyish white; all the upper surface and wings brown; tail brownish black, the three lateral feathers on each side largely tipped with white; centre of the throat rufous; the remainder of the under surface brownish grey, passing into sandy buff on the flanks and under tail-coverts; bill and feet blackish brown.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{1}{2}$; wing, $2\frac{1}{4}$; tail, $\frac{7}{8}$; tarsi, $\frac{13}{16}$.

Hab. Belts of the Murray in South Australia.

The female differs in having no red on the throat.

A highly interesting Pigeon from the north-west coast, which, as it differs from all the other forms of its family, and is said to inhabit

the rocks, I propose to make the type of a new genus, with the name of

Genus Petrophassa.

Characteres generici.—Ferè ut in Peristerâ. *Alæ* autèm et rotundatæ sunt et admodùm breviores; deest etiam color metallicè æneus. *Cauda* magìs rotundata.

Petrophassa albipennis. *Petr. supernè fusca; gutture albo-guttato; primariis ad dimidium basale albis.*

Crown of the head and neck grayish brown, margined with sandy brown; all the upper surface, chest and tail rufous brown, the centre of each feather inclining to gray; lores black; abdomen and under tail-coverts chocolate brown; throat clothed with small feathers white at the tip, black at the base; primaries dark brown at their tips, the basal half pure white; bill and irides blackish brown; feet reddish brown.

Total length, 10½ inches; bill, $\frac{7}{8}$; wing, 5¼; tail, 5; tarsi, ¾.

Hab. Western Australia.

Allied to the members of the genus *Peristera.*

Eudromius Australis. *Eudr. colore cervino vel luteolo; abdomine medio castaneo; parte inferiore nec non crisso albis.*

Forehead and all the upper surface light sandy buff, the centres of the feathers being brown; primaries brownish black with sandy buff shafts, and all but the first four broadly margined with the same; throat buffy white, below which a crescent-shaped mark of blackish brown; chest, flanks and under surface of the wing buff, passing into reddish chestnut on the abdomen, beyond which the vent and under tail-coverts are white; tail brownish black, the centre feather margined with buff, the outer ones with white; bill dark olive brown; feet yellowish brown.

Total length, 7½ inches; bill, $\frac{7}{8}$; wing, 5¼; tail, 2½; tarsi, 1⅜.

Hab. Interior of South Australia.

This is a highly interesting species, since it is the only bird approaching the form of the British Dottrel found in any part of the world. This rare species has been sent me by my friend Captain Sturt, who procured it during his late expedition into the interior of Australia, behind Adelaide.

Rhipidura isura. *Rhip. corpore suprà sordidè fusco; caudæ rectricum utrinque externâ albo extrinsecùs marginatâ et latè terminatâ, proximâ albo ad apicem notatâ, iterumque proximâ apicem versus linea albâ tenuissimâ.*

All the upper surface dull brown; wings and tail darker brown, the outer feather of the latter on each side margined externally and largely tipped with white, the next having a large irregular spot of white at the tip, and the next with a minute line of white near the tip; chin and under surface buffy-white, with an indication of a dark brown band across the chest; bill and feet black.

Total length, 8 inches; bill, $\frac{5}{8}$; wing, 3⅝; tail, 3½; tarsi, $\frac{11}{16}$.

Hab. North-west coast of Australia.

In the collection of his Excellency Captain Grey and Mr. Dring.

Rather a large species, and is distinguished from the other members of the genus by the sombre hue of its plumage and the square form of its tail.

Psilopus culicivorus. *Psi. abdomine crissoque albis; rectricibus caudæ, duabus intermediis exceptis, albo ad basin latè fasciatis.*

All the upper surface olive-brown; wings brown margined with olive; two centre tail-feathers brown; the remainder white, crossed by an irregular band of black and tipped with brown, the band upon all but the external feathers, so blending with the brown at the tip that the white between merely forms a spot on the inner web; lores blackish-brown; line over the eye, throat and chest light gray, passing into buff on the flanks, and into white on the centre of the abdomen and under tail-coverts; irides light reddish yellow; bill and feet black.

Total length, $4\frac{1}{4}$ inches; bill, $\frac{1}{2}$; wing, $2\frac{1}{4}$; tail, $1\frac{3}{4}$; tarsi, $\frac{5}{8}$.

Hab. Western Australia.

A new species and new form, which I first saw in the streets of Adelaide, where it was hopping about and presenting the appearance of the Sparrow in London. For this new bird I propose the generic and specific terms *Xerophila leucopsis*.

Genus Xerophila.

Characteres generici.—Rostrum breve, semiconi instar, ad basin robustum, ad apicem haud denticulatum, basi vibrissis anticè ductis parcè instructâ; naribus rotundatis et plumis minutis obtectis. *Alæ* mediocres, remigum primo brevi, tertio et quarto longissimis, tertiariis latis et paulò elongatis. *Cauda* mediocris, ad apicem quadrata, et aliquantò concava. *Tarsi* robusti; digitus posticus validus, digiti antici debiles, horum externus longissimus.

Xerophila leucopsis. *Xer. facie albâ; corpore supernè fusco.*

Forehead and lores white; upper surface olive brown; wings and tail brown, the latter passing into black near the extremity and tipped with white; all the under surface pale buff; bill and feet black.

Total length, 4 inches; bill, $\frac{3}{8}$; wing, $2\frac{1}{2}$; tail, $1\frac{3}{4}$; tarsi, $\frac{3}{4}$.

Hab. South Australia.

Licmetis pastinator. *Lic. albus, loris coccineis; remigum pogoniis internis necnon caudæ rectricum sulphureis, colore quàm in L. nasico intensiore cui speciei magnitudine corporis L. pastinator magnoperè præstat.*

Lores scarlet; general plumage white; the base of the feathers of the head and front of the neck scarlet, showing through and giving those parts a stained appearance; the basal half of the inner webs of the primaries, the inner webs of all the other feathers of the wing and the inner webs of the tail-feathers beautiful brimstone yellow; naked space round the eye greenish blue; irides light brown; bill white; feet dull olive gray.

Total length, $17\frac{1}{2}$ inches; bill, $1\frac{5}{8}$; wing, 12; tail, 7; tarsi, 1.

Hab. Western Australia.

Nearly allied to *Licmetis nasicus*, but of a much larger size.

Numenius uropygialis. *Num. vertice fusco, lineâ luteolâ angustâ et inæquali per medium currente; uropygio et tectricibus caudæ fusco alboque fasciatis.*

Crown of the head brown, with a narrow irregular stripe of buffy white down the centre; lores and line behind the eye brown; line over the eye, neck and breast buffy white, with a brown line down the centre of each feather, the brown colour predominating; centre of the back and scapularies dark olive spotted on their margins with light buff; wing-coverts the same, but lighter and presenting a mottled appearance; primaries blackish brown with white shafts; rump and upper tail-coverts barred with brown and white; tail pale brown barred with dark brown; chin, lower part of the abdomen and under tail-coverts white; bill blackish horn-colour, fleshy at the base; feet grayish black.

Total length, 15 inches; bill, 3; wing, $9\frac{1}{2}$; tail, 3; tarsi, $2\frac{1}{4}$.

Hab. South coast of Australia.

Nearly allied to *N. Phæopus* but distinguished from that species by the brown colouring of the rump.

Numenius minutus. *Num. uropygio tectricibusque caudæ intensè fuscis; marginibus plumarum albo-guttatis; corpore subtùs luteolo.*

Forehead dark brown mottled with buff; lores and line behind the eye buff; back, sides and front of the neck buff, with a fine line of brown down the centre of each feather; all the upper surface blackish brown, with a series of triangular spots round the margins of the feathers of a sandy buff; shoulders, primaries and secondaries blackish brown, the latter with white shafts; rump and tail-coverts dark brown spotted with white on the margins; tail grayish brown barred with black; chin white; under surface light buff; flanks and under surface of the wing deep buff, regularly barred with arrow-shaped marks of brown; irides black; bill fleshy at the base, olive brown at the tip; feet bluish flesh-colour.

Total length, 12 inches; bill, $1\frac{3}{4}$; wing, 7; tail, 3; tarsi, $1\frac{3}{4}$.

Hab. New South Wales.

This is one of the smallest species of the genus. I never but once saw a flock of this bird; out of which I killed two, on the race-course at Maitland on the Upper Hunter.

Porphyrio bellus. *Porph. capite, collo et corpore subtùs intensè cæruleis; facie, gutture et pectore virescenti-cæruleis; dorso, alis caudâque e fusco nigris.*

Head, neck and all the under surface deep blue; sides of the face, front of the throat and chest greenish blue; back, wings and tail brownish black; shoulder and edge of the wing and outer margins of the primaries greenish blue; under tail-coverts white; irides bright red; bill red; legs grass-green, except the knees, lower part of the tarsi and inside of the feet, which are dark greenish gray.

Total length, 18 inches; bill, $1\frac{3}{4}$; wing $10\frac{1}{2}$; tail, $4\frac{1}{2}$; tarsi, $3\frac{1}{2}$.

Hab. Western Australia.

Otis Australasianus. *Ot. vertice et occipite nigris; capitis lateribus, collo et pectore e cinereo-albis fusco adspersis; singulis*

plumis crebrè lineis transversis fuscis et tortuosis vel fractis striatis; pectore fasciâ nigrâ haud æquali ornato.

Crown of the head and occiput black; sides of the head, the neck and breast grayish white, each feather crossed by numerous fine zigzag bands of brown, giving those parts a freckled appearance; wing-coverts black largely tipped with white; all the upper surface, wings and upper tail-coverts brown very minutely freckled with reddish brown; some of the feathers towards the hinder parts of the body tinged with gray; tail gray, crossed near the centre by an interrupted band of white, minutely freckled with white, margined with brown and slightly tipped with white; chest crossed by an irregular band of black, beyond which the under surface is white; under tail coverts grayish black tipped with white; irides brownish buff, brown predominating near the pupil; eyelash pale olive yellow; bill straw-white with olive and black culmen; legs and feet straw-yellow.

Total length, 40 inches; bill, 4; wing, 25; tail, 10; tarsi, $7\frac{1}{2}$.

Hab. Plains of the interior of Australia generally.

Anas nævosa. *Anas intensè fusca, plumis albo irroratis et longitudinaliter notatis.*

The whole of the plumage dark brown, minutely freckled and spotted with irregular oblong marks of white in the direction of the feathers; the under surface the same, but lighter and tinged with buff; wings without a speculum; primaries plain brown; irides light brown; bill greenish gray, becoming much darker at the tip; legs bluish green.

Total length, 17 inches; bill, $2\frac{1}{2}$; wing, 9; tail, 3; tarsi, 2.

Hab. Western Australia.

The above is the description and measurements of a female.

Sula Australis. *Sula primariis alarum et secondariis necnon rectricibus caudæ duabus intermediis fuliginoso-fuscis; tarsis anticè digitisque viridi-flavis.*

Crown of the head and back of the neck beautiful buff; the remainder of the plumage white, with the exception of the primaries, secondaries and four centre tail-feathers, which are fuliginous brown with white shafts; irides olive white; bill brownish horn-colour slightly tinged with blue; space round the eye leaden blue; bare skin at the base of the beak and down the centre of the throat nearly black; front of the tarsi and toes sickly greenish yellow; webs brown.

Total length, 32 inches; bill, $5\frac{1}{2}$; wing, 19; tail, 10; tarsi, 2.

Hab. The Tasmanian Seas.

The specimen exhibited is from the River Derwent. Like the other members of its family, this species will allow of its being taken with the hand. Some of my specimens were so taken on a rock on the Actæon Islands.

The circumstance of being enabled to bring an entirely new Albatros before the notice of the Society is a source of great gratification to me, since the group to which it belongs had already been

paid much attention to by our early voyagers and later naturalists. The present bird differs from all the other species in the extreme caution with which it avoids rather than approaches the neighbourhood of vessels at sea. It is rather abundant in Bass's Straits and in all the seas off Van Diemen's Land.

From its shyness, I propose to name this species

DIOMEDEA CAUTA. *Diom. vertice albo; faciei colore e margaritâ cinereo; dorso, alis caudâque cinereo-fuscis; rostro pallidè vinaceo-cinereo; culmine, ad basin præsertim, flavo.*

Crown of the head, back of the neck, throat, all the under surface, rump and upper tail-coverts pure white; lores and line over the eye grayish black, gradually passing into the delicate pearl-gray which extends over the face; back, wings and tail grayish brown; irides dark vinous orange; bill light vinous gray, or bluish horn-colour, except on the culmen, where it is more yellow, particularly at the base; the upper mandible surrounded at the base by a narrow belt of black, which also extends on each side the culmen to the nostrils; base of the lower mandible surrounded by a belt of rich orange, which extends to the corners of the mouth; feet bluish white.

Total length, 31 inches; bill, $4\frac{1}{2}$; wing, $21\frac{1}{2}$; tail, 9; tarsi, 3.

Hab. Bass's Straits.

The above are the dimensions of a female; the male is considerably larger.

Nearly allied to, but larger than *D. melanophrys*.

THALASSIDROMA NEREIS. *Thal. gutture pectoreque fuliginoso-cinereis; dorso, uropygio tectricibusque caudæ cinereis; abdomine, lateribus et crisso albis.*

Head, neck and chest sooty gray; lower part of the wing-coverts, back, rump and upper tail-coverts gray, each feather very slightly margined with white; wings grayish black; tail gray, broadly tipped with black; under surface pure white; irides, bill and feet black.

Total length, $6\frac{1}{2}$ inches; bill, $\frac{9}{16}$; wing, $5\frac{1}{4}$; tail, $2\frac{1}{2}$; tarsi, $1\frac{1}{4}$.

Hab. Bass's Straits, on the south coast of Australia.

This beautiful fairy-like Storm Petrel is about the size of *Thal. Wilsoni*, and is remarkable as differing from most of the members of the group in having no white on the rump and in the pure white of the under surface.

Mr. Gould exhibited to the Meeting a new species of *Hypsiprymnus*, from Swan River, which he characterized under the name of

HYPSIPRYMNUS GRAII. *Hyps. fusco-cinereus; corpore subtùs albescente; caudâ mediocri, fuscâ, flavo lavatâ, ad apicem albâ; pedibus pallidè fuscis; auribus mediocribus rotundatis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	18	0
——— *caudæ*	11	6
——— *tarsi digitorumque* (sine unguibus)..	4	3
——— ab apice rostri ad basin auris	2	4
——— *auris*	1	1

This species most nearly resembles the *Hypsiprymnus rufescens* of Mr. Gray, but differs in being of an ashy brown colour above, and in having the hairs which clothe the back of the ears of the same general colour as those of the head, instead of black, as in the species just mentioned. The fur is long, and soft to the touch; the hairs both on the upper and under parts of the body are of a palish grey colour at the base; those on the under parts are dirty white externally, and those on the back are dirty white (inclining to ash-colour) near the *apex*, and tipped with brownish black: on the sides of the head and body a very faint yellowish hue is observable. The ears are sparingly clothed within with small yellowish hairs; externally they are clothed with fur, like that on the head. The feet are of a very pale brown colour. The tail is brown, tinted with yellowish, excepting the apical third, which is covered with longish white hairs.

December 22.—William Yarrell, Esq., Vice-President, in the Chair.

A letter from Mr. Frembly, R.N., Corresponding Member Z.S., was read. It is dated Gibraltar, November 28th, and refers to two species of Shark which that gentleman had forwarded for the Society's Museum.

The following paper, being a continuation of Mr. Broderip's descriptions of Mr. Cuming's new shells, was read:—

Helix (Cochlostyla) Daphnis. *Hel. testâ ovato-pyramidali anfractibus* 5 *ventricosis, ultimo cæteros conjunctos excedente; labii limbo castaneo-nigricante, aperturâ albidâ vel purpurascente.*

Var. *a. Ochraceo-albida, anfractibus* 2 *ultimis vittis angustis serie duplice dispositis, nigricantibus, cinctis; fasciâ sub-basali vittis albido-ochraceis interruptâ nigricante; aperturâ cæruleo-albidâ.*

Var. *b. Sordidè albido-flava vittis fuscis creberrimè cincta; aperturâ albidâ.*

Var. *c. Sub-ochracea, vittis raris distantibus rubro-nigricantibus ornata, anfractu basali fasciâ latâ centrali, rubro-castaneâ ochraceo subinterruptâ cincto; aperturâ subcæruleo-albidâ.*

Habitant varietates *a, b, c,* ad Argao in insulâ Zebu.

Var. *d. Sordidè ochracea lineis* 3 *fuscis, medio maximo clariore, cincta; aperturâ albidâ.*

Hab. ad Sibonga in insulâ Zebu.

Var. *e. Albido-flava strigis obliquis fulvis creberrimis ornata, et fasciâ basali latiore cincta; aperturâ albidâ.*

Var. *f. Albens strigis obliquis creberrimis nigris ornatâ et maculis magnis nigris interdum fucata; fasciâ basali angustâ nigrâ; aperturâ cæruleo-albente.*

Habitant varietates *e,* et *f,* in insulâ Siquijod.

Var. *g. Sordidè ochracea, strigis obliquis raris castaneo-nigricantibus fucata; basi nigricante ochraceo sordidè fucatâ; aperturâ purpurascente.*

Var. *h. Anfractibus* 2 *primis albidis, tertio et quarto fuscis; ultimo*

sordidè albido strigis rarissimis obliquis nigricantibus vix notato; aperturâ rubro-purpurascente.

Habitant varietates *g*, et *h*, ad Argao in insulâ Zebu.

The general size of this fine species is about $2\frac{1}{2}$ inches long by $1\frac{3}{4}$ broad. All the varieties were found by Mr. Cuming in deep forests, on the leaves of trees. In none of them hardly do the markings commence before the fourth whorl.—W. J. B.

Helix (Cochlostyla) Faunus. *Hel. testâ elongato-subpyramidali, fuscâ, anfractibus 6 subventricosis; labii limbo nigricante; aperturâ cæruleo-albidâ.*

Var. *a. Fusca, strigis obliquis e castaneo-nigricantibus creberrimis subobscurioribus ornata, lineis nigricantibus obscurioribus cincta; fasciâ latâ basali nigricante.*

Var. *b. Fusca, lineis creberrimis obscuris cincta, strigis brevibus raris subobliquis juxta suturam notata.*

Long. 2 ad $2\frac{3}{8}$; lat. $1\frac{1}{2}$ poll.

Hab. ad Sanctum Nicolam in insulâ Zebu.

The variety *a.* is the shortest. The third specimen is deprived of its *epidermis*, or nearly so, and the ground-colour is exposed. The first four whorls are chestnut, gradually deepening in colour, and the last whorl is of a rich purple brown: the shell is obscurely banded, especially on the last whorl.

Mr. Cuming found this species on the leaves of trees.—W. J. B.

Helix (Cochlostyla) Satyrus. *Hel. testâ subpupiformi anfractibus 5 subventricosis, purpureo-castaneâ, epidermide fuscâ; aperturâ ovatâ, albidâ; labii limbo purpureo-castaneo.*

Long. 2; lat. $1\frac{1}{4}$ poll.

Hab. in insulâ Tablas.

Obscure oblique stripes and bands occur in some of the individuals of this species, which, though it approaches the last, differs from it in many points, especially in the form of the *apex* and the shape and structure of the aperture.

Found by Mr. Cuming on leaves of trees.—W. J. B.

Bulinus.

Bulinus Ægle. *Bul. testâ fulvâ; anfractu ultimo juxta suturam fasciâ angustâ et juxta basin fasciâ latâ medio pallidiore ornato; diaphanâ, lineis incrementi obliquis creberrimè striatâ; labii limbo castaneo-nigricante; aperturâ albente.*

Long. $1\frac{3}{4}$; lat. $1\frac{1}{4}$.

Hab. ad Casan in insulâ Mindanao.

The first four whorls are very pale, but the last is deep fulvous: a white line runs round the suture of the body-whorl.

Mr. Cuming found this species in a dense forest, on the leaves of trees.

Bulinus partuloïdes. *Bul. testâ pyramidali, nitidâ, aperturâ ovatâ, columellæ basi subplicatâ, labii limbo complanato, latissimo, reflexo, albo.*

Long. $1\frac{1}{4}$; lat. $\frac{3}{4}$ poll.

Var. *a. Flava, castaneo-vittata.*

In this pretty variety a single chestnut band borders the base of each whorl, and on the body-whorl there is in addition a broad, subcentral, chestnut band.

Var. *b. Castanea, albo vittata.*

In this variety the rich chestnut is relieved by a white band that borders the upper part of the last two whorls, near the suture.

Var. *c. Castanea, fusco vittata.*

In this variety the upper part of each whorl near the suture is banded with brown.

Hab. in insulâ Tablas.—W. J. B.

PLEKOCHEILUS.

PLEKOCHEILUS GRACILIS. *Pl. testâ elongatâ, gracili, anfractibus* 4, *ultimo longissimè maximo, subdiaphanâ, anfractu basali transversim corrugato, strigis angulatis irregularibus longitudinalibus creberrimè fucato; anfractibus cæteris subroseis; aperturâ subaureo-flavâ; labii limbo lato, reflexo, albo.*

Long. $1\frac{5}{4}$; lat. $\frac{3}{4}$.

Hab. in insulis Feejee dictis?

Hitherto this form has only been discovered in the Western World. Mr. Cuming received the specimen above described from a captain of a ship, who said he had got it from a native of one of the Feejee Islands. A glance at the western species will satisfy the observer that the species above described is distinct.—W. J. B.

Mr. Waterhouse exhibited two new species of Birds from the Society's collection, and pointed out their distinguishing characters. The first is a small species of *Picus*, believed to be from the north-west coast of South America, and is remarkable for the absence of spots and markings, and the brilliant red colour of the upper parts of its body and wings: this red colouring commences on the back of the neck, and is continued to the tail, as well as over the whole of the wings; that is, over the visible portion of each feather, the inner shafts being of a brown colour. The whole of the upper surface of the head is of a brown-black colour; the sides are pale brown; the throat is pure white; the chest and whole of the under parts of the body are of a dirty white colour, indistinctly tinted with yellowish. The tail is of an uniform blackish brown colour, with the exception of the two outer feathers on each side, which are pale brown; on the apical half of the external feather there is a very obscure indication of bands. The beak is of a very pale horn-colour.

The principal characters may be thus briefly expressed:—

PICUS CALLONOTUS. *Pi. capite pallidè fusco, suprà fuliginoso; corpore suprà alisque sanguineis; gulâ, pectore abdomineque albescentibus; caudâ obscurè fuscâ; rostro albescente.*

In size and general form this species agrees very closely with the *Picus minor* of Europe, but its beak is rather longer in proportion, being nine lines in length.

The second new species is one of the Icterine group, and in most

of its characters agrees with that division to which the term *Cassicus* is applied: it has the same stout conical bill, the upper surface of which is broadly expanded at the base, and encroaches on to the forehead: the *apex* is pointed. This bird, however, differs from any other species of the group to which it belongs, in the great length of its wings, which extend considerably beyond the tip of the tail, which is of moderate length, broad, and slightly rounded. The colouring of the plumage is also remarkable, and particularly the texture of the feathers, those of the body having a velvet-like appearance, whilst those of the wings have a distinct gloss, such as we see in the plumage of the Crows. No doubt, according to the views of many ornithologists, this bird would be regarded as a new genus or subgenus; the sectional name *Ocyalus* is therefore proposed, from Ωχυαλος, in allusion to the swiftness with which it is to be presumed a bird with such wings would move.

Subgenus Ocyalus.

Characteres ut in Cassico, *alæ autem longissimæ, et caudæ apicem transeuntes.*

Cassicus (Ocyalus) Popayanus. *Oc. niger, corpore purpureo relucente; alis nitore viridi; capite nuchâque suprà castaneo tinctis; caudâ flavâ, rectricibus quatuor intermediis in toto nigris, sic et apicibus reliquorum; rostro pallido.*

Long. tot. 11 unc.; *rostri*, $1\frac{1}{2}$; *lat. ad basin*, $6\frac{3}{4}$ lin.; *alæ*, $8\frac{1}{2}$ unc.; *caudæ*, 4.

Hab. Popayan.

MICROSCOPICAL SOCIETY OF LONDON.

At a meeting of the Microscopical Society, held August 18th, R. H. Solly, Esq., F.R.S., in the chair, a paper was read from Dr. Thomas Williams, in continuation of that of the Rev. J. B. Reade, on the Stomata of Plants, wherein the author states, that by having recourse to the process of charring, as described by that gentleman, he satisfied himself that the stomata in plants were closed by a pellicle; but from other experiments he infers, that this pellicle is formed by the air contained in the intercellular spaces and cells of the stomata, carrying before it, in its dilatation, a bubble of gelatinous mucus, with which the interior of the stomata are covered. The summit of the vesicle thus produced, when raised into contact with the heated glass, becomes carbonized, and being upon the same plane with the common surface, from the pressure of the plate of glass it appears as belonging to the epidermis, and extending from one edge of the aperture to the other. He concludes by stating, that the natural condition of the stomata is that of patency; but in consequence of the inspissation of the organic mucus, under certain circumstances and in certain genera of plants, a pellicle is generated over their orifices.

The Secretary, Mr. John Quekett, then read a paper by himself on the Anatomy of four species of Entozoa of the genus *Strongylus*

from the common Porpoise. The author stated, that the subjects of his paper were, with one exception, all found in the lungs of the Porpoise. Two of them had been long known, and had been described by Rudolphi and many others under the names of the *Strongylus inflexus* and *minor*; whilst a third, from the circumstance of its being found with the *inflexus*, had, by all others except Kuhn, been described as a younger specimen of that species, but by him as the *Strongylus convolutus*; whilst the fourth appeared hitherto either to have escaped notice, or else to have been confounded with the last; but his examinations of this Entozoon led him to consider it as a distinct species, and from the circumstance of its being inclosed in a sheath or case, he had named it the *Strongylus invaginatus*, at the suggestion of his friend Dr. Willis. The *Strongylus inflexus* was the largest of the Entozoa, and it occurred most abundantly in the bronchial tubes, and in such numbers as almost to close them up; but many specimens were found in the right auricle and ventricle of the heart, and in the principal blood-vessels of the lungs as well. The average length of the male is about seven inches, whilst that of the female is nine inches. The next species was found in common with the last, being twisted together in a knot around them both in the bronchial tubes and blood-vessels; it has been noticed as the young of the *inflexus*, but, on comparison, the author finds that the difference between the two is so marked as to leave no doubt of their being distinct species: Kuhn has named it the *Strongylus convolutus*. The third species is the smallest of the whole, some specimens not much exceeding an inch in length, and from this circumstance has been named the *Strongylus minor*. It occurred in the venous sinuses of the head and in the cavity of the tympanum, and some of them were of a reddish hue, probably owing to their living in blood. The fourth species, the *Strongylus invaginatus*, was found in small cysts in the lungs not connected with the blood-vessels, to the number of five or six in each cyst, which were easily extracted when the cyst was opened: the male was very much shorter than the female, and both were inclosed in a transparent sheath or case, which was in contact with the body of the worm only at the head and tail.

After describing the anatomy of each species, the author then proceeded to some interesting peculiarities connected with their ova, in which the gradual transition from vitelline globules to the perfect worm was beautifully seen. He then alluded to the curious fact of the *Strongylus inflexus* and *convolutus* living in blood and in air, and concluded with mentioning some other interesting points connected with these Entozoa, and the probable effects they produced in the œconomy of the animal. The paper was accompanied with drawings and illustrative diagrams.

Mr. Ross exhibited to the Society a new form of the Microscope, in which strength, durability, steadiness, and cheapness were combined; it was capable of exhibiting the usual test-objects, and the price only 12*l*.

MISCELLANEOUS.

George-Town, July 30.

"The industrious traveller, Mr. Schomburgk, arrived in town this morning from his first surveying expedition."—*Guiana Times.*

We are glad to see a very pleasing and faithful likeness of our esteemed friend, with a memoir of his life, in the 3rd volume on Ichthyology in the Naturalist's Library, which we have just received.

Mr. W. S. MacLeay writes from Sydney, April 28, 1841, that he is much occupied with Natural History, and making large additions to his collection. He gratifies us with good accounts of the health of his excellent Father, who is always most affectionately remembered here.—R. T.

Mr. W. Francis writes to us from the Tyrolese Alps, where he is collecting plants and insects.

ON THE NATURAL HISTORY OF THE HODÉSUM (IMPROPERLY CALLED KOLEHAN). BY LIEUT. TICKELL.

Singbhoom, including the Kolehan, lies between 21° 30′ and 23° north latitude, and 85° and 86° east longitude; it is bounded to the north by Chota Nagpoor and Patkoom; to the east by the Jungle Mehals and Baumunghatte; to the south by petty states, or tuppahs, subservient to Moherbunj, and by Keonjur; and to the east by Gangpoor and Chota Nagpoor. These limits comprise a fine open tract of country, in most parts exceedingly productive, in others stony and barren, and separated from the circumjacent countries above enumerated by rocky hills and jungles. Singbhoom Proper consists of an extent of fine open arable land, to the north of the Kolehan, above 45 miles east and west, and about 18 in breadth, comprising the talooks of Khursawa, Kera, and Seryekela, also a portion of similar land, about 20 miles square, to the north-east, called Koochoong, attached to Seryekela, and along the west of the Kolehan, an imperfectly defined extent of mountains and jungles, including Porahaut and Anundpoor.

The Kolehan, as now constituted, comprehends a tract of open undulating country, averaging from sixty miles in length north and south, from thirty-five to sixty in breadth. It is divided into two departments by a step about 500 feet high, running east and west across it. The southern part is rich in soil, and beautiful in appearance; but an absence of inhabitants and proper culture gives it an air of desolation. This happily is becoming fast remedied by the return of large families of Bhooians, former inhabitants, who had been expelled by the Hos. The lower country north of the step is exceedingly populous, but in many parts stony and barren. The westerly Peers are situated among hills and vast jungles, containing a few fertile valleys; and Sarnda, in the far south, is one mass of mountains, clothed in forests, where the miserable inhabitants, few and solitary, can scarce struggle for mastery with the tiger.

The whole of this country is traversed by numerous streams of great beauty, but useless as water-carriage, being almost dry in the hot weather, and rapid torrents in the rains. The *Sunjye*, separating

the Kolehan from Singbhoom, rises to the north-west of Porahaut, and enters the Kurkye near the junction of that river with the Soobum-rekha; the Roro, twelve miles south of the former, a narrow but deep and swift stream, and the Eeleegarra and Toorul still further south, take a like course above the step; the Dés Nye runs westward and falls into the Kolekaro, near its confluence with the Koïl; and near the southern limits of the Kolehan, the different streams take a south and west direction, falling into the Bhundun and Byturnee, which last, running through vast and lonely forests, separates the Kolehan from Jushpoor and Rorwan in Moherbunj, and Kalkapershaud in Keonjur. There are two water-falls on the borders of the Kolehan, which I have never visited, but which, by the description of the natives, must be well worth seeing. The Bunnye, running between Sonepoor and Singbhoom, is said to roll its waters into a profound cave, from which spot it pursues its course underground, and is supposed to join the Kole Káro. The fall is called Paraá-ghag, and is a tiruth, but so remote from habitation and buried in such deep woods as to be seldom visited, except by the Sonepoor Koles and Bhooians of Porahaut and Bundgaon. On the confines of Baumunghattee also is a singular cascade, described to me as a single thread of water pouring down a wall-like precipice of 200 or 300 feet in height. It is called by the Baumunghattee Oorias, Muchkandnee Jhurna; and by the Koles, Hakoo-yâmdah, meaning in either language, "The fall of the weeping-fish," from some whimsical story of the fish complaining of the impossibility of scaling the cataract, to emerge from the dreary abyss, through which the stream winds below. The peculiar distribution of the hills in this country, running in parallel ranges, precludes the formation of lakes, which are unknown.

These ranges are not of very great height, the loftiest, which are in Saruda, not appearing above 1000 feet above the plain. They are however intersected in parts by profound valleys, which give the hills, from that side, an appearance of great magnitude. They are chiefly quartz, in all stages of decomposition, permeated by limestone rocks; smaller detached ranges, issuing at right angles to these, are commonly of micaceous slate. From Chyebassa, proceeding easterly into Koochoong, are low ridges perfectly parallel, about half a mile to a mile apart, gradually increasing in height till the series is closed by the Choivria hills in Koochoong. They are composed of loose rocks, resembling (if they are not) clink stone; but the larger ridges are of coarse granite. The northern part of the Kolehan consists in a great measure of sterile plains, scattered with quartz boulders, stones, and pebbles, some crystallized. The beds of the nullahs are a shingle composed of jasper (of all hues), green-stone, quartz pebbles, and flint. The bed of the Byturnee is lined with flattened pebbles and lumps of jasper of bright yellow, red, purple, and black, disposed in parallel streaks or ribbons, as if artificially inlaid. The corundum is found in great quantities at Juggernathpoor on the upper step of the Kolehan, and several nullahs run through beds of argillaceous earth, from the brightest scarlet to pure white, which are highly in request among the natives. The whole of these streams wash down more or less gold, but the Koles know not how to collect

it. In Singbhoom a tolerable quantity is gathered by Hindoos, but of a third- or fourth-rate quality, also excellent iron ; of coal I never found any traces.

The open parts of the Kolehan are here and there scattered with a scrub-jungle, composed chiefly of the Polass and Assun, on which latter the tusser silk-worms are bred. The southern parts, where not cultivated, are covered by extensive plains of grass, interspersed with bushes ; entirely along the west boundary are forests of saul trees, small and meagre on the hills, but reaching in the low rich valleys to a size perfectly prodigious. In Anundpoor, towards Gangpoor, are tracts covered entirely with the wild plantain, and many of the hills are clothed densely with bamboos. In marshy spots a strong serviceable species of cane or ratan is found. The wild mango tree is also very common in these forests, yielding a fruit far preferable to the common kind found in the "topes" throughout India ; it is small, round, and full of juice, as sweet as honey. The date and palm trees are not cultivated by the Koles, but are to be found near Hindoo villages in Singbhoom ; cheretta, wild indigo, and arrow-root are very common in the jungles. But to enumerate all the beautiful flowers which enrich these green retreats—the fruits and roots, to every one of which the natives attach some specific virtue or harm ; the inexhaustible variety of plants, shrubs and fungi, ferns, creepers, &c. which clothe, in all varieties of fantastic imagery, the shady dells ; or the cool banks of foliage-canopied streams,—would be a task far exceeding my powers or the limits of this memoir.

The animals found in the Kolehan are the same as in other parts of Central India, but not nearly so abundant as in better-watered jungles ; besides which, the Koles and Oorias are inveterate hunters, and their attacks on game of all kinds are pursued on an exterminating scale.

The elephant, which is numerous in parts of the Jungle Mehals, comparatively close to Medneepoor, is, strange to say, unknown among the remote and wild regions of West Singbhoom ; the gowér is common in this latter region—two species are described by the natives, a red and a black kind ; the urna and smaller wild buffalo are very numerous about Anundpoor ; great varieties of deer haunt the hills, the saumúr (*C. rusa*), neelgye (*Damalis picta*), spotted deer (*C. axis*), barking deer or Muntjac (*C. muntjac*), chikerac or four-horned deer (*C. chicquera*) : all these species, though so shy when sought after as to be seldom met with, must be tolerably numerous, from the depredations they commit on the fields of gram, boot, moong, oorid, &c. which are planted near the jungles. The memina, a species of mouse deer, is also found among rocks and underwood. The antelope is confined to the wide open plains of Chynpoor in Singbhoom, and very limited in number. Tigers and leopards abound. Bears infest almost every clump of rocks throughout the plain ; they are all of the long-lipped species (*Ursus labiatus*). Hyænas inhabit similar localities, but are rare. There are no *wolves*, but there appear to be two distinct species of the jackal (*C. aureus*), one of which is much larger, stouter and ruddier than what I remember of the jackal of Bengal. The cry also is different, and is a wailing sound,

not much unlike, though infinitely louder than, the mewing of a cat; at all events the Koles distinguish the two animals, calling the large kind (from its cry) *Tow Koola,* and the common jackal *Kurmcha.* The little Bengal fox or corsac (*Cynalopex insectivorus*) is very numerous, yapping all the clear nights long during the cold season. The Indian badger or ratel (*Ratelus melivorus*) is found in the woods, but rarely. Porcupines (*Hystrix*) are numerous, but being nocturnal, are seldom seen. The short-tailed marus (*M. crassicaudata*) is met with among rocks, but is one of the rarest animals known. There are three kinds of squirrels, the common palm-squirrel (*Sciurus striatus*), the great red squirrel (*Sciurus macrourus*), and a large gray flying squirrel, peculiar, I believe, to the Kolehan and the Jungle Mehals. This last is exceedingly rare, as it lives on lofty trees in profound forests, and only moves forth at night. The wild dog (*Canis primævus*), *Koohia* and *Sona-kookoor* of the Oorias, and *Tannee* of the Koles, roams through the jungles in packs, occasionally visiting the flocks and herds on the plains. Their ferocity, speed and cunning have gained them a superstitious veneration among the Koles, and dread of their retaliating on their cattle deters the villagers from killing them. Of these also there are said to be two kinds; a large dog, in shape and colour like a Scotch greyhound or lurcher, which hunts by sight; and a smaller, red, bushy-tailed dog, which follows the other in packs of five to twenty, is less speedy and hunts by scent. The hare is larger than that of Bengal, inhabits gravelly ravines in scrub-jungle, and never takes to grass. Of monkeys there are only the two common species, the Lungoor and Mákor or Bunder (*Sara* and *Gye* of the Koles); the former live among rocks, the latter in dense thickets. Wild hogs are very numerous in some parts, but so wary as to be seldom killed. The rhinoceros is not known.

Birds of all kinds are scarce and wild, especially those fit for food, on account of the keenness with which the Koles pursue, trap, hawk, and shoot them. The double-spurred partridge is found among rocks, but is one of the most difficult birds to shoot, as it seldom takes wing, but creeps into caves and fissures. The deep moist woods afford immense varieties to the ornithologist.

Being a dry and stony country, the Kolehan is peculiarly prolific in snakes of all varieties: the covra is not so common as another species, the *Siarbinja* of the Oorias, and *Pago jarras* of the Hos (*Cophias Russelii*), which is supposed to be equally deadly and far more vindictive; it is a subgenus of rattle-snake (without the rattle). A large and beautiful snake, coloured with black and yellow rings, the *Sakom bing* (*Pseudoboa fasciata*), is met with in ploughed fields; a long thin green whip-snake infests the rank grass-jungles at the bottoms of hills; the hartoo, a slender agile species, coloured like a ribbon with yellow and coppery purple, infests trees: all these are venomous. The Python or Ujgur (*Toonil bing*) is found in every jungle; it attains to dimensions which I have heard described, but which would sound too marvellous to be recorded without better proofs. Throughout Singbhoom, Chota Nagpoor, and the surrounding countries, a belief is current of a monstrous species of snake, the

Garra bing, infesting rivers swollen by torrents, which destroys both men and cattle should they venture in. I mention it, as the opinion is so general; but it is probable that the sudden and mysterious deaths which occur in these mountain-torrents are occasioned by what seamen call the "under tow" and "back water," caused by the violent passage of water over rocks and deep holes. The body of a person thus carried away is never seen again, at least in the neighbourhood, and this total disappearance naturally strengthens the idea of his having been swallowed up by some huge animal.

An entomologist would find an exhaustless field of research and discovery in the jungles of this country. The decayed saul trees are tenanted by magnificent species of *Prionus* and *Cerambyx*; the rocks contain endless beautiful varieties of Coleoptera; the deep woods, everywhere during the rainy season brilliant with odoriferous flowers, are enlivened by Lepidoptera of the gaudiest colours, and numberless varieties of grotesque shapes in the Mantides, Phyllia and Grilli, infest every thicket; while tribes of ants, bees and wasps attract attention by the beauty and ingenuity of their habitations and nests in the forests. Of the former, one of the commonest species is remarkable for traversing the jungles, and marching along the paths in procession two or three abreast, and of prodigious extent. Scorpions and centipedes are fearfully common; of the former, a species infests caves and fissures in rocks, and attains such an enormous size, that had I not heard the animal described by several people (of different classes), and had reason to be satisfied of the general truth of their assertions, I should have looked upon the whole as a chimæra. In dry, konkerous soils, the white ants are a scourge; they appear, in woods, to be a kind of vegetable scavenger, reducing to powder the logs which lie on the ground in a short space of time.

Fish are abundant in every largish stream, retiring in the dry season to the deep pools, which are left when the main channel has run dry; but the Koles, by poisoning the water, destroy inordinate quantities. The mahseer, and the little fly-taking Cyprinus, miscalled "trout" in Upper India, are not found in these lower latitudes. Doubtless these running jungle-streams produce many undiscovered varieties of fish, but unfortunately, to this branch of natural history I turned no attention during my stay in the country.

The climate of the Kolehan has been found to be on the whole healthy, although the station of Chyebassa, which was unfortunately selected hurriedly, and without sufficient examination and comparison with surrounding spots, is not a favourable sample, situated on a barren, gravelly plain, interspersed with brushwood, and near piles of bare rocks. The heat during the day is excessive, but the nights are invariably cool, and the air invigorating and exhilarating, in spite of the temperature, owing probably to its peculiar dryness. A mile only to the south-east, at the village of Tambore, the country rises in undulating meadows, beautiful in appearance as an English park, and infinitely cooler than Chyebassa. These advantages in forming the cantonment were either overlooked or thought of less note than the nearer vicinity of water, Chyebassa being on the banks of the Roro. The Hos are more free from disease than any other

people, in consequence of the precautionary measures they take—their nutritive food and drink, and the open airy positions they build in. As a guard against infection or fire, their villages are small and scattered, and on the first appearance of any epidemic they leave their houses and flee into the jungles, living apart from each other. Singbhoom, on the contrary, from the obverse manners of the Oorias, is yearly scourged by cholera, fevers and small-pox. This latter disease, propagated by the Bramin inoculators, has within the last year spread with fearful havoc into the Kolehan, and most unfortunately simultaneously with the introduction of vaccine, to which the evil has alone been attributed. The rains are not heavy in the Kolehan, but the monsoon is accompanied by violent storms of wind from the north-west, with severe thunder and lightning, causing many fatal accidents. None of that sultry oppression incident to Bengal is felt at that time of year. The cold season is truly luxurious—"a nipping and an eager air" without fogs or mists. March, April and May are generally the only unpleasant hot months of the year; during this period not a drop of water falls occasionally for upwards of six weeks; the aspect of the country loses every trace of verdure, and the dried stony soil reflects with unbearable force the rays of the sun. Vegetation is vigorously restored on the commencement of the rains, and as these are not accompanied by the gloomy sky and unceasing torrents which fall in the plains of India, the landscape is pleasingly chequered by passing showers, and the tender foliage of the forests glistens alternately with golden breaks of sunshine or mellowed shades of green. To the south and east of Singbhoom, and in the most dreary and deserted parts of the country, are remains indicative of the former presence of opulent and industrious people, but so decayed by time, and engulfed in the labyrinths of untenanted forests, as to be unmarked by any record or history, save that they must have been of prior origin to the first known Bhooians of the country.—*Journal of the Asiatic Society of Bengal, No.* 19.

Fossil Foraminifera in the Greensand of New Jersey.—Prof. J. W. Bailey, in a recent visit to the cretaceous formations of New Jersey, has brought to light the interesting fact, that a large portion of the calcareous rock defined by Prof. H. D. Rogers as the third formation of the upper secondary, is made up, at the localities where he examined it, of great quantities of microscopic shells, belonging to the Foraminifera of D'Orbigny, which order includes those multilocular shells which compose a large part of the calcareous sands, &c. of Grignon and other localities in the tertiary deposits of Europe. Since the minute multilocular shells above alluded to were discovered, Dr. Torrey and Prof. Bailey have together examined specimens of limestone from Claiborne, Alabama, and have found in them Foraminifera, of forms apparently identical with those occurring in New Jersey. None of this order except the genus Nummulite have heretofore been noticed in our greensand formation. In this connexion we may also announce the interesting discovery recently made by Prof. Wm. B. Rogers, of

A vast Stratum of Fossil Infusoria in the Tertiary Strata of Vir-

ginia.—It occurs about twenty feet in thickness, beneath Richmond, and is found to be filled with new and highly interesting forms of *marine* siliceous Infusoria.—*Silliman's Journal, July* 1841.

Mr. R. C. Taylor's Model of the Southern Coal-Field of Pennsylvania.—At the Second Annual Meeting of American Geologists, held in April last, Mr. Richard Cowling Taylor, F.G.S., exhibited a highly interesting model in plaster of the Dauphin and Lebanon coal region, embracing altogether an area of seven hundred and twenty square miles, showing the range of the mountain elevations, with their relative height and position; also their elevation above tide level; the dip of the rocks, the position of the coal-seams, and much other useful information.

Mr. Taylor accompanied this exhibition with remarks explanatory and statistical in relation to this coal region, and made some observations on the importance of this mode of exhibiting the geological features of a country, expressing the hope that the day would come when models of this kind, representing the several states, and even the whole United States, shall be constructed. He also enlarged upon the propriety of following as closely as possible the actual conformation of the country in drawing sections, and of adopting uniform modes of illustration by colours, &c., and the importance of an equal scale of extension and elevation as far as practicable in such sections.—*From Silliman's Journal, July number,* where the remarks are published entire, with a coloured section.

METEOROLOGICAL OBSERVATIONS FOR AUG. 1841.

Chiswick.—August 1. Slight rain: cloudy and fine. 2. Fine with clouds: rain. 3. Hazy: cloudy and mild: rain. 4. Cloudy and fine. 5. Fine: slight rain. 6, 7. Fine. 8. Rain: cloudy and fine. 9. Very fine. 10. Very fine: rain. 11. Stormy and wet. 12. Fine. 13. Cloudy. 14. Rain: showery: clear at night. 15—17. Cloudy and fine. 18. Hazy: fine. 19, 20. Very fine. 21. Cloudy. 22. Cloudy: slight rain. 23. Rain: cloudy and fine. 24. Showery: clear. 25. Drizzly. 26. Hazy and mild. 27. Heavy dew: cloudy and hot. 28—30. Foggy in the mornings: very fine: evenings clear. 31. Overcast and fine.

Boston.—August 1. Fine: rain P.M. 2. Fine. 3. Cloudy: rain P.M. 4. Fine: rain early A.M. 5. Cloudy: rain P.M. 6. Cloudy and stormy. 7. Cloudy: rain P.M. 8, 9. Cloudy. 10. Fine. 11. Cloudy: rain early A.M.: rain P.M. 12. Stormy. 13. Cloudy. 14. Cloudy: rain early A.M. 15, 16. Cloudy. 17. Fine: rain P.M. 18, 19. Fine. 20. Fine: thermometer 77° half-past two P.M. 21. Fine: rain A.M. 22. Fine. 23, 24. Fine: rain early A.M. 25. Rain: rain early A.M. 26. Cloudy: thermometer 75° three-quarters past two P.M. 27. Fine: thermometer 75° quarter-past eleven A.M. 28, 29. Fine. 30, 31. Cloudy.

Applegarth Manse, Dumfries-shire.—August 1. Fair, but cool and cloudy. 2. Fair and fine. 3. Wet A.M.: cleared and was fine. 4. Fair and fine. 5. Rain all day. 6. Wet A.M.: cleared and was fine. 7. Wet, slightly. 8. Fine though showery: thunder. 9. Wet A.M.: became fine. 10. Showery. 11. Fair. 12. Showery all day. 13. Partial showers. 14. Wet A.M.: became fine. 15. Fine till P.M.: then rain. 16. Wet A.M.: cleared P.M. 17. Fair throughout. 18. Fair A.M.: wet P.M. 19. Fair and warm: air electrical. 20. Wet nearly all day: thunder. 21. Wet P.M.: flood. 22. Fine and fair. 23. Occasional slight showers. 24. Wet P.M. and evening: thunder. 25. Showery. 26. Rain early A.M.: cleared. 27. Fine: one shower A.M. 28. Wet morning: cleared. 29. Fine but cloudy. 30. Wet all day. 31. Fair and fine.

Meteorological Observations made at the Apartments of the Royal Society by the Assistant Secretary, Mr. ROBERTON; *by* Mr. THOMPSON *at the Garden of the Horticultural Society at Chiswick, near London; by* Mr. VEALL *at Boston, and by* Mr. DUNBAR *at Applegarth Manse, Dumfries-shire.*

Days of Month. 1841. Aug.	Barometer.						Thermometer.								Wind.				Rain.				Dew-point.
	London: Roy. Soc. 9 a.m.	Chiswick.		Boston. 8½ a.m.	Dumfries-shire.		London: Roy. Soc.			Chiswick.		Boston. 8½ a.m.	Dumfries-shire.		London: Roy. Soc. 9 a.m.	Chiswick 1 p.m.	Bost.	Dumfries-shire.	London: Roy. Soc. 9 a.m.	Chiswick.	Boston.	Dumfries-shire.	Lond.: Roy. Soc. 9 a.m.
		Max.	Min.		9 a.m.	8½ p.m.	Fahr. 9 a.m.	Self-register. Max.	Min.	Max.	Min.		Max.	Min.									
1.	29·830	29·923	29·790	29·30	29·68	29·75	58·3	65·2	50·0	66	49	57	61	49	NW.	SW.	calm	WNW.	·055	·02	…	…	54
○ 2.	29·986	29·937	29·765	29·42	29·75	29·67	62·5	64·0	54·0	70	58	61	62½	44	WSW.	SW.	NW.	SW.	·005	·38	·05	…	55
3.	29·742	29·691	29·411	29·16	29·53	29·38	62·8	70·8	60·4	73	57	64·5	63	53½	NNW.	SW.	calm	SSW.	·377	·38	…	…	59
4.	29·492	29·785	29·385	28·94	29·53	29·60	60·0	71·0	59·0	69	57	63	65½	51	N.	N.	N.	S.	·366	…	·86	…	58
5.	29·796	29·742	29·609	29·17	29·42	29·21	65·0	69·0	60·0	64	57	64	71	53	SW.	SW.	SE.	E.	…	·01	…	…	61
6.	29·748	29·851	29·663	29·05	29·34	29·55	60·6	66·0	58·5	67	57	62	60	54	W.	W.	W.	W.	·008	·07	·06	…	57
7.	29·962	29·893	29·798	29·33	29·59	29·50	64·0	69·5	60·5	74	58	62·5	61	52½	W.	W.	calm	SSW.	·088	…	…	1·47	57
8.	29·738	29·716	29·619	29·12	29·38	29·41	61·0	71·4	59·5	67	52	63	60	55½	SSW.	S.	W.	SW.	·008	·01	·01	…	59
9.	29·646	29·684	29·596	29·04	29·39	29·38	59.5	69·0	56·0	70	49	60	59	50½	W.	W.	calm	W.	…	·01	…	…	57
☾ 10.	29·874	29·800	29·678	29·26	29·49	29·58	61·0	72·5	53·0	68	55	61·5	58	48	SW.	S.	SW.	SW.	…	·36	…	…	56
11.	29·512	29·662	29·458	28·95	29·49	29·56	61·4	67·5	58·0	68	46	60	60	45	SW.	SW.	S.	NW.	·277	·30	·61	…	59
12.	29·958	29·923	29·888	29·34	29·70	29·74	59·2	68·0	51·0	65	41	57	61	44	W var.	NW.	W.	NNW.	·080	…	·45	…	51
13.	29·928	29·886	29·772	29·36	29·65	29·61	62·0	64·0	61·5	70	54	60	61	42	W.	S.	W.	E.	·013	·30	…	…	56
14.	29·646	29·719	29·599	29·08	29·39	29·44	62·0	66·5	57·0	72	54	61	62½	53	SW.	SW.	SW.	SW.	·213	·04	·25	0·28	58
15.	29·766	29·746	29·687	29·16	29·49	29·62	64·5	68·6	57·0	70	50	61·5	67	55	W.	SW.	calm	W.	·036	…	…	…	59
● 16.	29·928	29·921	29·851	29·32	29·72	29·72	61·5	71·6	56·0	74	58	60	64	45	WNW.	S.	calm	SW.	·011	…	…	…	57
17.	30·018	30·056	29·969	29·35	29·73	29·94	64·5	71·5	60·0	75	56	63·5	62½	54	SW.	W.	W.	NW.	…	…	…	…	60
18.	30·210	30·173	30·140	29·61	30·00	30·04	63·7	73·0	58·4	76	56	62·5	64	43½	NW.	W.	calm	NW.	…	…	·01	…	60
19.	30·276	30·197	30·006	29·60	30·00	29·95	63·5	69·5	56·0	77	47	61	61½	53	WSW.	SW.	calm	S.	…	…	…	…	57
20.	30·006	29·734	29·629	29·37	29·75	29·64	66·5	73·0	56·0	80	51	66	69	58	SSE.	W.	S.	W.	…	…	…	…	59
21.	29·684	29·903	29·797	29·00	29·55	29·52	66·7	77·5	53·0	72	48	67	61	49	W.	S.	SE.	NW.	…	…	…	2·00	63
22.	29·978	29·874	29·800	29·36	29·65	29·48	63·0	73·0	56·0	68	54	59	61	48½	SW.	S.	calm	E.	…	·58	·12	…	56
☽ 23.	29·904	29·884	29·797	29·30	29·60	29·78	58·0	68·0	57·0	72	44	57	63	49	WNW.	W.	calm	W.	·416	·01	·18	…	57
24.	30·124	30·094	30·048	29·36	29·94	29·94	57·0	67·5	50·5	67	45	56	61½	41½	WNW.	N.	NW.	WNW.	·015	·13	·04	…	48
25.	30·148	30·079	30·059	29·44	29·83	29·90	57·0	65·0	52·0	67	60	55·5	64½	50	SW.	SW.	NW.	SW.	·130	·07	·21	…	…
26.	30·268	30·225	30·181	29·59	30·00	30·10	63·2	65·5	57·0	79	62	64	63	55	W.	SW.	calm	SW.	·061	…	…	…	61
27.	30·332	30·244	30·142	29·59	30·07	30·00	69·7	70·0	65·0	81	51	69	65½	56½	W.	SW.	calm	SW.	·011	…	…	…	64
28.	30·264	30·189	30·125	29·54	30·01	30·03	62·7	76·5	59·5	77	52	62·5	65	54	W.	W.	calm	W.	…	…	…	1·26	59
29.	30·236	30·159	29·920	29·55	29·92	29·85	65·4	72·5	59·0	81	51	65	66	54½	WSW.	SW.	calm	SW.	…	…	…	…	62
30.	30·064	29·998	29·840	29·35	29·73	29·60	63·5	77·0	60·0	80	67	65	61	56½	W.	S.	calm	SSW.	…	…	…	…	60
31.	29·826	29·844	29·729	29·16	29·69	29·80	66·7	76·0	63·0	74	45	65	62	50½	W.	NW.	calm	WNW.	…	·02	…	…	63
Mean.	29·932	29·920	29·798	29·29	29·680	29·716	62·5	70·0	57·2	72·03	52·93	61·8	62·1	50·5					Sum. 2·168	2·69	2·85	5·01	Mean. 58